# Retropharyngeal abscess

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**Disclosures**

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**Disclosures**

LL declares that she has no competing interests.

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# Summary

Rare condition, which can be a life-threatening infection if not detected early.

Potential threat to airway should always be considered.

Symptoms may be non-specific (e.g., fever, dysphagia), especially in children under 2 years old.

CT scan of neck is the definitive investigation.

Treatment includes use of intravenous antibiotics and surgical drainage.

# Basics

## Definition

Retropharyngeal abscess (RPA) is a neck infection involving abscess formation in the space between the pre-vertebral fascia and the constrictor muscles.[1] The condition occurs most frequently in children but its incidence is increasing in adults.[2]

## Classification

### Aetiological classification

There is no formal classification of RPAs, but classification can be based on the aetiology, which includes:

- Upper respiratory tract infection
- Trauma/foreign body
- Idiopathic.

## Vignette

### Vignette 1

A 19-month-old boy presents with a swinging fever and irritability. The parents report that the child has been pulling at his throat and ears, which they think indicates that the child is in pain. He has also been lethargic and has neck stiffness. The child is drooling and shows signs of

sensitivity to light.

## Other Presentations

Other common presentations include decreased oral intake of food and drink, neck pain (especially on movement), odynophagia (painful swallowing), neck swelling (or mass or lymphadenopathy), dysphagia, and anorexia. Less common presenting features include trismus (lockjaw), dysphonia (hoarseness), dyspnoea, stridor, and sleep apnoea.[3]

## Epidemiology

Although rare, RPAs are serious, with the potential for significant morbidity and mortality if not detected early. They account for 12% to 22% of all deep space infections in the neck.[4] The peak incidence in children is at 3 to 5 years of age. The condition is increasing in incidence in adults.[5] Children are more frequently affected by the condition because they have an increased frequency of upper respiratory tract infections and oropharyngeal trauma, as well as the tendency towards suppuration in the retropharyngeal lymph nodes. These nodes tend to regress after the age of 4 years. RPAs are more common in males than in females, with 53% to 55% of cases occurring in males.[5][6][7]
In a 10-year review of RPA cases in the US, 70% of patients were African-American, 25% were white, and 5% were Hispanic.[6] However, a 2004 study found 43% of cases in African-American people, 54% in white people, 1% in Hispanic people, and 1% in biracial people.[7]

## Aetiology

Forty-five percent of RPAs are the sequelae of an upper respiratory tract infection (e.g., pharyngitis, tonsillitis, sinusitis, dental infections). The most common microorganisms implicated are *Streptococcus viridans*, *Staphylococcus aureus*, *Streptococcus epidermidis*, and beta-haemolytic streptococci. Less common causes include *Veillonella* species, *Bacteroides melaninogenicus*, *Haemophilus parainfluenzae*, and *Klebsiella pneumoniae*. Infections with both methicillin-resistant *Staphylococcus aureus* and *Mycobacterium tuberculosis* have also been reported.[8][9] Normal commensals of the upper respiratory tract can become pathologically offending organisms in an RPA.[10][11][12][13] Twenty-seven percent of RPAs are associated with accidental trauma to the retropharyngeal area from, for example, foreign body ingestion, a child running along with a lollipop in their mouth and falling, or swallowing sharp objects such as chicken bones. The remaining 28% are idiopathic.[10][11][12]

## Pathophysiology

The retropharyngeal space is immediately anterior to the prevertebral fascia that continues inferiorly from the skull base for the length of the pharynx. It is in continuity with the

parapharyngeal space and the infratemporal fossa. The retro- and parapharyngeal spaces are separated by the alar fascia, which seems to be an ineffectual barrier to the spread of infection. As the retropharyngeal space is in continuity with the superior and posterior mediastinum, it is a potential pathway for spread of infection into the chest.
The retropharyngeal space contains loose areolar tissue and lymphatic chains, the former allowing movement of the pharynx and oesophagus on swallowing. The lymph flowing through the space originates from tissues in the nose, paranasal sinuses, eustachian tubes, and adjacent pharyngeal tissues. Pus formation in the retropharyngeal nodes is often well contained, and therefore vertical spread of infection can occur late in the progression of the condition, although this rarely occurs in practice.
Most of the symptoms and signs of RPA relate to the increasing obstruction of the upper aerodigestive tract and irritation of local muscle groups (e.g., sternomastoid and pterygoids).

# Risk factors

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## Strong

### foreign body ingestion

[strength: strong]
There is a high risk in children with a history of swallowing foreign objects. The suspicion should be high especially if the object was sharp.

### trauma to posterior pharyngeal wall

[strength: strong]
Penetrating trauma to the posterior pharyngeal wall is a known cause. Non-accidental injury should be considered.[14]

### dental caries/infection

[strength: strong]
Prior dental infection can predispose patients to the formation of an RPA.

### diabetes mellitus

[strength: strong]
Up to one third of patients with deep neck abscess suffer from this condition.[4]

## Weak

### male sex

[strength: weak]
RPA is more common in males than in females, with reported male preponderance of 53% to

55%.[5][6][7]

**adenotonsillectomy**

[strength: weak]
There is an association between retropharyngeal or parapharyngeal abscess and adenotonsillectomy, although more research is needed in this area to define this association.[15]

# Diagnosis

## Diagnostic approach

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Although history and examination are key to identifying an RPA, imaging or the spontaneous or surgical drainage of the abscess confirms the diagnosis.[7]

### History

A careful history is important, as other serious conditions are part of the differential diagnoses. RPAs are most commonly the sequelae of an upper respiratory tract infection (e.g., pharyngitis, tonsillitis, sinusitis, dental infections). They occur more commonly in children; therefore, a history of foreign body ingestion should be noted.
In children, presentation may be vague and depends on the stage of disease, but characteristic symptoms include spiking fever, neck pain (especially on movement) or torticollis, and dysphagia. Other common symptoms include irritability, malaise, mild photophobia, and odynophagia (painful swallowing). Odynophagia causes drooling, poor oral intake, and anorexia. Less common symptoms include trismus (lockjaw), dysphonia (hoarseness), stridor, or sleep apnoea. The child may also be seen to pull at their ears or throat, which indicates pain.[3]
In adults, the presentation may be more specific with drooling and dysphagia, but is usually more insidious in onset. It is important to enquire about comorbidities such as diabetes mellitus and optimise glycaemic control if present. Up to one third of patients with a deep neck abscess have diabetes.[4]
Airway compromise usually presents with symptoms of dyspnoea, distress, and fatigue. Patients with a more complicated clinical course are more likely than those with a smooth clinical course to present with airway obstruction or multiple abscesses.[16]

### Physical examination

An attempt should be made to examine the oral cavity and neck to look for tonsillar swelling, oropharyngeal swelling, and lymphadenopathy. Other important observations may be made such as drooling, dyspnoea, torticollis, and neck swelling/mass. In children the examination may be limited depending on the age and co-operation of the child (and parents).
Airway compromise usually presents as tachypnoea, cyanosis, tracheal tug, or intercostal recession. High respiratory rate and oxygen saturations aid diagnosis of a compromised airway.

## Laboratory investigations

FBC with differential should be ordered initially to confirm neutrophilia. An ESR can also be performed to establish the degree of inflammatory disease in the absence of a significant neutrophilia. Blood cultures are not usually done unless sepsis is suspected.

## Imaging

Radiological investigations are required to confirm diagnosis. The selected investigation depends on the degree of suspicion and access to the different imaging modalities, as well as the severity of the case. Nonetheless, a CT scan is the definitive investigation and will demonstrate a ring-enhancing lesion in the retropharyngeal tissues when performed with contrast.**[Figure 1]**
If there is an airway concern or a likelihood of surgical drainage, then sedating and intubating a child before CT scanning with a view to proceeding to the operating theatre should be considered.
Ultrasonography and plain x-ray of the neck will provide some evidence of an RPA,**[17]** but these modalities are less sensitive and less specific than a CT scan. They should only be used when a CT scanner is not available.**[18]**
MRI is not used to diagnose this condition, as CT gives such a clear result in most cases and is usually more readily available and cheaper as a resource.

## Surgery

Evaluation under anaesthetic (EUA) should be performed if diagnosis of RPA is strongly suspected and the airway is compromised or if a CT scanner is not available. EUA should also be performed if CT scan (or other imaging investigations if CT is not available) has been performed and the result is consistent with RPA. EUA allows confirmation of diagnosis and allows transoral incision and drainage. A specimen of pus should be taken for culture and sensitivity if possible at the time of drainage.

# Diagnostic factors

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## Key Diagnostic Factors

### presence of risk factors

[frequency: common] [key-factor: true] [type: historical]
Key risk factors include trauma to posterior pharyngeal wall, foreign body ingestion, dental caries/infection, and male sex.

### spiking fever

[frequency: common] [key-factor: true] [type: symptom]
Common finding with any abscess.

### drooling

[frequency: uncommon] [key-factor: true] [type: symptom]
Caused by odynophagia.

### neck pain or torticollis

[frequency: common] [key-factor: true] [type: symptom]
Caused by irritation of sternomastoid.

### odynophagia

[frequency: common] [key-factor: true] [type: symptom]
Attempts to swallow past the abscess are painful.

### dysphagia

[frequency: common] [key-factor: true] [type: symptom]
Attempts to swallow past the abscess are difficult.

### neck swelling/mass/lymphadenopathy

[frequency: common] [key-factor: true] [type: sign]
There may also be other lymphadenopathy associated with the condition.

### oropharyngeal swelling

[frequency: common] [key-factor: true] [type: sign]
Visible bulge seen in the posterior oropharynx on examination.

## Other Diagnostic Factors

### decreased oral intake

[frequency: common] [key-factor: false] [type: symptom]
Caused by odynophagia.

### anorexia

[frequency: common] [key-factor: false] [type: symptom]
Caused by odynophagia.

### malaise

[frequency: common] [key-factor: false] [type: symptom]
Associated with systemic upset.

### irritability

[frequency: common] [key-factor: false] [type: historical]
Fever and other symptoms in a child cause irritability.

### trismus

[frequency: uncommon] [key-factor: false] [type: symptom]
Caused by irritation of masseters (muscles that cause jaw to bite).
Makes examination of posterior pharyngeal wall difficult.

### dysphonia

[frequency: uncommon] [key-factor: false] [type: symptom]
Swelling in the hypopharynx affects voice resonance above the vocal cords.

### dyspnoea

[frequency: uncommon] [key-factor: false] [type: symptom]
When the abscess becomes large enough to oppose the anterior pharyngeal wall, airway compromise occurs.

### fatigue

[frequency: uncommon] [key-factor: false] [type: symptom]
Associated with airway compromise.

### sleep apnoea

[frequency: uncommon] [key-factor: false] [type: symptom]
A consequence of airway compromise.

### stridor

[frequency: uncommon] [key-factor: false] [type: sign]
When the abscess becomes of a size to oppose the anterior pharyngeal wall, airway compromise occurs.

### tonsillar swelling

[frequency: uncommon] [key-factor: false] [type: sign]
May indicate another cause or be the precursor of the abscess formation.

### increased respiration rate

[frequency: uncommon] [key-factor: false] [type: sign]
Indicates airway compromise.

### decreased oxygen saturations

[frequency: uncommon] [key-factor: false] [type: sign]
Indicates airway compromise, but is usually a late finding and should not be relied on for diagnosis.

### cyanosis

[frequency: uncommon] [key-factor: false] [type: sign]
Sign of airway compromise.

### tachypnoea

[frequency: uncommon] [key-factor: false] [type: sign]
Sign of airway compromise.

### tracheal tug

[frequency: uncommon] [key-factor: false] [type: sign]
Neck is stretched backwards, while physician grips the cricoid cartilage of the trachea while standing behind patient, and feels whether the trachea is pulled down with each heartbeat.
Sign of airway compromise.

### intercostal recession

[frequency: uncommon] [key-factor: false] [type: sign]
Inward movement of intercostal muscles between the ribs as a result of reduced pressure in the chest cavity.
Sign of airway compromise.

# Investigations

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## 1st Tests To Order

| Test | Result |
| --- | --- |
| **FBC**<br>Part of routine work-up. Confirms neutrophilia.<br>[order: initial] [type: laboratory] | raised WBC count, especially neutrophils |

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| **ESR**<br><br>Part of routine work-up. Establishes degree of inflammatory disease in absence of significant neutrophilia.<br><br>[order: initial] [type: laboratory] | elevated |
| **CT neck with contrast**<br><br>Definitive investigation.<br>Confirms presence of abscess and aids in planning surgical approach. Air within or adjacent to a fluid collection or excessive free air between the neck fascias is highly predictive for an abscess.[19]<br><br>[order: initial] [type: imaging] | ring-enhancing lesion in retropharyngeal space |
| **x-ray of neck**<br><br>Lateral soft tissue film x-ray of neck.<br>Ordered if diagnosis suspected and CT is not available, or diagnosis is less likely based on history and examination.<br>May be used as an initial test if there is a high suspicion of RPA.<br><br>[order: initial] [type: imaging] | increased swelling of pre-vertebral space (>7 mm at C2 and >14 mm at C6) |
| **ultrasonography of neck**<br><br>Quick and reliable investigation to differentiate between cervical lymphadenopathy or liquefaction within a group of matted lymph nodes in the neck.<br><br>[order: initial] [type: imaging] | lymphadenopathy; collection of fluid |
| **examination under anaesthetic (EUA)**<br><br>Should be performed if diagnosis is strongly suspected and airway is compromised or if CT scanner not available.<br>May also be performed if CT scan (or other | bulging of posterior oropharyngeal wall |

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| imaging investigation) has been performed and result is consistent with RPA. EUA confirms diagnosis and allows transoral incision and drainage with collection of pus for culture.<br>[order: initial] [type: other] | |
| **culture**<br>Pus collected from surgical drainage should be sent for culture and sensitivities.<br>[order: initial] [type: laboratory] | positive for infecting organism |

# Differential diagnosis

| Condition | Differentiating signs/symptoms | Differentiating tests |
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| **Acute epiglottitis**<br>[Related Topic: Epiglottitis] | Difficult to distinguish from RPA but generally has a more acute onset.<br>Hx of difficulty in breathing. | CT scan would not show a ring-enhancing lesion in retropharyngeal space.<br>Lateral soft tissue neck x-ray shows radio-opaque shadow of inflamed epiglottis. |
| **Laryngotracheobronchitis**<br>[Related Topic: Croup] | Barking cough. | CT scan would not show a ring-enhancing lesion in retropharyngeal space and would show clinically normal appearance of oropharynx. |
| **Meningitis**<br>[Related Topic: Overview of meningitis] | Headache; purpuric rash may also be present in some cases. | CT scan would not show a ring-enhancing lesion in retropharyngeal space.<br>Positive finding on lumbar puncture. |
| **Tonsillitis** | Clinical examination confirms presence of infected tonsils with normal | Diagnosis is clinical. |

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| [Related Topic: Tonsillitis] | appearance of posterior pharyngeal wall. | |
| **Peritonsillar abscess** | Peritonsillar swelling and medialised uvula.<br>Normal appearance of the posterior pharyngeal wall on clinical examination. | Aspiration or incision and drainage of the swelling confirms diagnosis. |
| **Retropharyngeal lymphadenopathy** | Non-fluctuant swelling of posterior pharyngeal wall. | CT scan with contrast differentiates between lymphadenopathy and abscess. |
| **Nasopharyngeal carcinoma** | Persistent lymphadenitis.<br>Non-resolving symptoms despite adequate treatment. | Biopsy and cytology confirms presence of neoplasia. |
| **Epstein-Barr virus infection**<br>[Related Topic: Infectious mononucleosis] | Hepatosplenomegaly and generalised lymphadenopathy may be present. | Paul-Bunnell or monospot tests are positive. |
| **Retropharyngeal calcific tendonitis** | Signs and symptoms may mimic RPA.<br>It is self-limiting and usually settles after 2 weeks. | CT scan shows calcification anterior to the C1 and/or C2 vertebral body(s) with a non-ring-enhancing fluid collection in the prevertebral space.[20] |
| **Branchial cyst** | Congenital abnormality arising due to failed obliteration of the second branchial cleft. May mimic signs/symptoms of a retropharyngeal collection in the neonate.[21] | A contrast-enhanced CT scan shows a cystic and enhancing mass in the neck. MRI may allow for finer resolution during pre-operative planning. |
| **Kawasaki disease (KD)**<br>[Related Topic: | May have features of RPA, but lymphadenopathy is rarely seen in isolation or as the initial presentation.<br>Diagnostic features of KD | CT scan shows features that are very similar to retropharyngeal abscess, so the clinician must rely on the clinical |

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| Kawasaki disease] | include more than 5 days of pyrexia with 4 of 5 clinical criteria: non-purulent bulbar conjunctivitis, changes in the lips or oral cavity, polymorphous exanthem, erythema with later desquamation of the extremities, and at least one cervical lymph node >1.5 cm in size. | features.[22] |

# Diagnostic guidelines

Europe

### Management of sore throat and indications for tonsillectomy: a national clinical guideline

| Published by: | Last Published: |
|---|---|
| Scottish Intercollegiate Guidelines Network | 2010 |
| **URL:** http://www.sign.ac.uk/guidelines/published/index.html#ENT | |
| **Summary:** | |

# Treatment

# Management approach

Management is initially medical. If this fails, surgical intervention is required, with the consultation of an otolaryngologist. All patients should be admitted to hospital. Safe and appropriate management of the airway is important when it is threatened. This is usually achieved through conservative or surgical means. Treatment primarily depends on the severity of respiratory distress.

## Airway compromise

If there is a strong suspicion of a retropharyngeal abscess (RPA) and the airway is compromised (indicated by stridor, tachypnoea, and decreased oxygen saturation as the patient becomes fatigued), the patient should be admitted to hospital immediately. Initial medical management includes the use of corticosteroids and antibiotics.[23][24] If this is not rapidly effective, the patient should be taken to theatre promptly for examination under anaesthesia (EUA) with a view to surgical drainage. Intubation or a surgical airway such as a tracheostomy will be required and should be performed by an experienced paediatric or adult anaesthetist.
Fibre-optic intubation is sometimes favoured in these cases to prevent bursting of the abscess and to gain a good view of the airway.[17][24] If the tube is uncuffed, it is helpful to insert a pack allowing a view of the posterior pharyngeal wall for surgical access.[24] If a RPA is confirmed on surgical examination (bulging of posterior oropharyngeal wall seen and/or by aspiration of purulent fluid), the surgeon should perform a transoral incision and drainage. Cultures are taken and sent to the laboratory. In cases where there is extension to the posterior mediastinum, drainage of purulent discharge and debridement of necrotic material from the pericardial area and pleural space may be required.[25]
If the airway is still unstable, the patient should be monitored closely in an intensive care unit and started on empirical intravenous antibiotics; prolonged intubation may be required. Patients with a stable airway after surgery should also be started on empirical intravenous antibiotics.

## No airway compromise

Even in the absence of airway compromise, the patient should still be admitted to hospital. If the airway is not an immediate concern and there is no evidence of mediastinal extension of the abscess,[25][26] treatment with empirical intravenous antibiotics for 24 to 48 hours should be initiated promptly. Corticosteroids may also be used in conjunction with the intravenous antibiotics.[23] The patient is investigated by CT scan. Prompt treatment with antibiotics with or without corticosteroids can cause resolution or prevent disease progression in some patients caught early in the course of their disease (where there is only cellulitis rather than true abscess formation), thereby avoiding the need for surgical drainage.
However, failure of initial medical treatment (i.e., no symptomatic improvement, continuing swinging pyrexia, deterioration of vital signs) and/or the presence of a defined abscess on imaging should prompt the need for EUA with a view to peroral surgical drainage. Repeat CT imaging may be necessary to assess the progress of the abscess. With children it is usually preferable to anaesthetise the child before the CT scan, while adults can generally undergo the imaging phase without the need for anaesthesia. Intravenous antibiotics should be continued after surgical drainage, either as an empirical regimen or according to sensitivities when available.

## Empirical antibiotic therapy

Antibiotics should cover the most commonly implicated organisms: *Streptococcus viridans*, *Staphylococcus aureus*, *Streptococcus epidermidis*, and beta-haemolytic streptococci. Less common causes include *Veillonella* species, *Bacteroides melaninogenicus*, *Haemophilus parainfluenzae*, and *Klebsiella pneumoniae*. Normal commensals of the upper respiratory tract can become pathologically offending organisms in an RPA.[10][11][12] Typical antibiotic regimens include ampicillin/sulbactam, clindamycin, cefuroxime, ceftriaxone, metronidazole, and amoxicillin/clavulanic acid. Combination regimens of these antibiotics may be necessary to adequately cover likely organisms (e.g., ceftriaxone plus metronidazole or clindamycin plus

cefuroxime).[25] Metronidazole would cover for anaerobic bacteria as there may be a connection with the parapharyngeal space and therefore the oral cavity.
Clinical improvement should be seen within 24 to 48 hours; if this is not the case, the patient should be re-evaluated. The antibiotic spectrum may need to be broadened. In refractory cases, atypical mycobacteria or MRSA should be suspected. Empirical antibiotics should be continued until the patient is afebrile or able to tolerate oral medications to complete a 14-day course. Patients may be switched to targeted therapy based on cultures if drainage is performed.

### Supportive care

Patients should have their airway monitored throughout treatment. Adequate intravenous hydration and nutrition should be given until oral intake of food and drink is tolerated. Some patients may require analgesia. Patients should be monitored closely for development of complications.

# Treatment algorithm

| **Acute** | | |
|---|---|---|
| **Patient Group** | **Tx Line** | **Treatment** |
| **airway compromise** | **1st** | **IV corticosteroid + nebulised adrenaline (epinephrine)**<br><br>If there is a strong suspicion of RPA and the airway is compromised, the patient should be admitted to hospital immediately. Initial medical management includes the use of intravenous corticosteroids and nebulised adrenaline (epinephrine). If this is not rapidly effective, the patient should be taken to theatre promptly for examination under anaesthesia with a view to surgical drainage. |

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| | | **Primary Options**<br><br>dexamethasone: children and adults: 0.5 to 2 mg/kg/day intravenously given in divided doses every 6 hours<br>**and**<br>adrenaline inhaled: consult local protocols for guidance on dose |
| | **plus** | **surgery**<br><br>If intravenous corticosteroids + nebulised adrenaline (epinephrine) are not rapidly effective, the patient should be taken to theatre promptly for examination under anaesthesia with a view to surgical drainage.<br>Intubation (by an experienced paediatric or adult anaesthetist) or a surgical airway such as a tracheostomy will be required.<br>If RPA is confirmed on surgical examination, patient should undergo transoral incision and drainage.<br>Cultures should be taken and sent to laboratory. |
| | **plus** | **empirical antibiotic therapy**<br><br>Antibiotics should be started after surgery and should cover the most common organisms: *Streptococcus viridans*, *Staphylococcus aureus* (including MRSA), *Streptococcus epidermidis*, and beta-haemolytic streptococci. Less common |

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| | | causes include *Veillonella* species, *Bacteroides melaninogenicus*, *Haemophilus parainfluenzae*, and *Klebsiella pneumoniae*. Normal commensals of the upper respiratory tract can become pathologically offending organisms in an RPA.[27][28][29] Metronidazole would cover for anaerobic bacteria as there may be a connection with the parapharyngeal space and therefore the oral cavity. Clinical improvement should be seen within 24 to 48 hours; if this is not the case, patient should be re-evaluated. Antibiotic spectrum may need to be broadened. In refractory cases, atypical mycobacteria or MRSA should be suspected. Intravenous treatment should be continued until patient is afebrile or is able to tolerate an oral antibiotic (e.g., amoxicillin/clavulanate) to complete a 14-day course. Patient may be switched to targeted therapy based on cultures from incision and drainage if performed.<br><br>**Primary Options**<br><br>ampicillin/sulbactam: children >1 month of age: 100-200 mg/kg/day intravenously given in divided doses every 6 hours; adults: 1-2 g intravenously every 6-8 hours, maximum 12 g/day Dose refers to ampicillin component.<br>**OR** |

| | | |
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| | | ceftriaxone: children >1 month of age: 50-80 mg/kg/day intravenously given in divided doses every 12-24 hours; adults: 1-2 g intravenously every 12-24 hours<br>**and**<br>clindamycin: children >1 month of age: 25-40 mg/kg/day intravenously given in divided doses every 6-8 hours; adults: 1.2 to 2.7 g/day intravenously given in divided doses every 6-12 hours<br>**OR**<br>cefuroxime: children >1 month of age: 75-150 mg/kg/day intravenously given in divided doses every 8 hours; adults: 750-1500 mg intravenously every 8 hours<br>**and**<br>metronidazole: children >1 month of age: 22.5 mg/kg/day intravenously given in divided doses every 6 hours; adults: 500 mg intravenously every 8 hours |
| | **plus** | **supportive care + analgesia**<br><br>Patients who still have an unstable airway after surgery should be monitored closely in an ICU. These patients may require prolonged intubation or tracheostomy. Adequate intravenous hydration and nutrition should be given until patient is able to tolerate oral intake of food and |

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| | | drink.<br>Some patients may require analgesia.<br>Patient should be monitored closely for development of complications.<br><br>**Primary Options**<br><br>paracetamol: children: 10-15 mg/kg orally every 4-6 hours when required, maximum 75 mg/kg/day; adults: 500-1000 mg orally every 4-6 hours when required, maximum 4000 mg/day<br>**OR**<br>ibuprofen: children: 5-10 mg/kg orally every 4-6 hours when required, maximum 40 mg/kg/day; adults: 300-400 mg orally every 6-8 hours when required, maximum 2400 mg/day |
| **no airway compromise** | **1st** | **empirical antibiotic therapy**<br><br>If the airway is not an immediate concern, initial treatment should be with empirical intravenous antibiotics. This will cause resolution in some cases where there is only cellulitis and not a true abscess. It will also prevent progression of disease when patient presents early in the course of disease, often eliminating the need for surgical drainage.<br>Antibiotics should cover the most common organisms: *Streptococcus viridans*, *Staphylococcus aureus*, *Streptococcus* |

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| | | *epidermidis*, and beta-haemolytic streptococci. Less common causes include *Veillonella* species, *Bacteroides melaninogenicus*, *Haemophilus parainfluenzae*, and *Klebsiella pneumoniae*. Normal commensals of the upper respiratory tract can become pathological organisms in an RPA.[27][28][29] Metronidazole would cover for anaerobic bacteria as there may be a connection with the parapharyngeal space and therefore the oral cavity.<br>Clinical improvement should be seen within 24 to 48 hours; if this is not the case, patient should be re-evaluated. Antibiotic spectrum may need to be broadened or surgery considered. In refractory cases, atypical mycobacteria or MRSA should be suspected. Intravenous treatment should be continued until patient is afebrile or patient is able to tolerate an oral antibiotic (e.g., amoxicillin/clavulanate) to complete a 14-day course. Patient may be switched to targeted therapy based on cultures from incision and drainage if performed.<br><br>**Primary Options**<br><br>ampicillin/sulbactam: children >1 month of age: 100-200 mg/kg/day intravenously given in divided doses every 6 hours; adults: 1-2 g intravenously every 6-8 |

| | | |
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| | | hours, maximum 12 g/day Dose refers to ampicillin component.<br>**OR**<br>ceftriaxone: children >1 month of age: 50-80 mg/kg/day intravenously given in divided doses every 12-24 hours; adults: 1-2 g intravenously every 12-24 hours<br>**and**<br>clindamycin: children >1 month of age: 25-40 mg/kg/day intravenously given in divided doses every 6-8 hours; adults: 1.2 to 2.7 g/day intravenously given in divided doses every 6-12 hours<br>**OR**<br>cefuroxime: children >1 month of age: 75-150 mg/kg/day intravenously given in divided doses every 8 hours; adults: 750-1500 mg intravenously every 8 hours<br>**and**<br>metronidazole: children >1 month of age: 22.5 mg/kg/day intravenously given in divided doses every 6 hours; adults: 500 mg intravenously every 8 hours |
| | **adjunct** | **intravenous corticosteroids**<br><br>Intravenous corticosteroids may also be used in conjunction with intravenous antibiotics.[30]<br><br>**Primary Options**<br><br>dexamethasone: children: |

| | | |
|---|---|---|
| | | 150 micrograms/kg intravenously given in divided doses every 12 hours; adults: 4-8 mg intravenously every 8 hours |
| | **adjunct** | **surgery**<br><br>Failure of initial medical treatment (i.e., no symptomatic improvement, continuing swinging pyrexia, deterioration of vital signs) and/or the presence of a defined abscess on imaging should prompt the need for EUA with a view to peroral surgical drainage. Repeat CT imaging may be necessary to precisely locate the abscess. With children it is usually preferable to anaesthetise the child before the CT scan, while adults can generally undergo imaging without the need for anaesthesia. Intravenous antibiotics should be continued after surgical drainage, either as an empirical regimen or according to sensitivities when available |
| | **plus** | **supportive care + analgesia**<br><br>Patients should have their airway monitored throughout treatment. Adequate intravenous hydration and nutrition should be given until patient is able to tolerate oral intake of food and drink.<br>Some patients may require |

| | | |
|---|---|---|
| | | analgesia.<br>Patient should be monitored closely for development of complications.<br><br>**Primary Options**<br><br>paracetamol: children: 10-15 mg/kg orally every 4-6 hours when required, maximum 75 mg/kg/day; adults: 500-1000 mg orally every 4-6 hours when required, maximum 4000 mg/day<br>**OR**<br>ibuprofen: children: 5-10 mg/kg orally every 4-6 hours when required, maximum 40 mg/kg/day; adults: 300-400 mg orally every 6-8 hours when required, maximum 2400 mg/day |

# Treatment guidelines

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## Europe

### Management of sore throat and indications for tonsillectomy: a national clinical guideline

| **Published by:** | **Last Published:** |
|---|---|
| Scottish Intercollegiate Guidelines Network | 2010 |
| **URL:**<br><br>http://www.sign.ac.uk/guidelines/published/index.html#ENT | |
| **Summary:** | |

# Followup

## Outlook

There is a good prognosis for an RPA that is identified early. However, the mortality is 40% to 50% if serious complications (e.g., meningitis) develop,[31] although complications are uncommon and are generally due to inferior or superior spread of infection. Recurrence occurs in 1% to 5% of patients.[12]
Tracheostomy is more commonly required in adults, and this can lead to a prolonged hospital stay with the required rehabilitation. Prolonged intubation is preferred over tracheostomy when severe airway compromise exists. The sequelae of this will depend on individual comorbidity but include the systemic ramifications of admission to an ICU, including nosocomial infection.

## Complication

| Complications | Timeframe | Likelihood |
|---|---|---|
| recurrence of abscess | short term | low |
| May be the result of inadequate drainage or antibiotic treatment. Re-drain as necessary. | | |
| necrotising fasciitis | short term | low |
| Infection can develop into cervical necrotising fasciitis, which can spread inferiorly causing mediastinitis.<br>The patient should be admitted to ICU and an infectious disease specialist consulted for management options.<br><br>Necrotising fasciitis | | |
| aspiration pneumonia | short term | low |
| Due to spontaneous rupture or inadequate drainage.<br>The patient should be admitted to ICU and ventilated as necessary.<br><br>Aspiration pneumonia | | |

| | | |
|---|---|---|
| meningitis | short term | low |
| Due to superior spread of infection.<br>The patient should be admitted to ICU and an infectious disease specialist consulted for management options.<br><br>Overview of meningitis | | |
| epiglottitis | short term | low |
| Due to inferior spread of infection.<br>Ensure that airway is secured.<br><br>Epiglottitis | | |
| mediastinitis | short term | low |
| Due to inferior spread of infection.<br>The patient should be assessed by cardiothoracic surgeons and ICU. | | |
| purulent pericarditis | short term | low |
| Due to inferior spread of infection.<br>The patient should be admitted to ICU and an infectious disease specialist consulted for management options.<br>Cardiology review if cardiac compromise occurs.<br><br>Pericarditis | | |
| pyopneumothorax/pneumo mediastinum | short term | low |
| Due to inferior spread of infection.<br>The patient should be admitted to ICU; a chest drain may be required. | | |
| empyema/pyothorax | variable | low |
| Due to inferior spread of infection.<br>Antibiotic treatment should be prolonged and surgical drainage performed if necessary. | | |

Empyema

# Recommendations

## Monitoring

Follow-up is usually unnecessary once resolution occurs unless there are other complications or if weaning from tracheostomy is required. In complicated cases it may be reasonable to ask the patient to return to clinic after 2 weeks to inspect the oropharynx and hypopharynx. This may be pertinent in an older adult (age >50 years) where there is a need to rule out underlying neoplasia. In this case, examination with a flexible endoscope should be mandatory.

## Patient discussions

Once oral intake is established, the patient can be discharged with instructions to eat normally, take regular analgesia (oral or in the form of gargles if necessary), and finish the course of antibiotics.
Patients should be told to return if symptoms recur after discharge, but after 2 weeks this is unlikely.

## Secondary prevention

Recurrence is unlikely. Patients should complete the full course of antibiotics. Avoiding trauma to the posterior pharyngeal wall and maintaining good dental hygiene are likely to be of benefit.

# Images



Figure 1

CT scan of neck demonstrating ring-enhancing lesion

Philpott CM, Selvadurai D, Banerjee AR. Paediatric retropharyngeal abscess. J Laryngol Otol. 2004;118:919-926

# Key Articles

Philpott CM, Selvadurai D, Banerjee AR. Paediatric retropharyngeal abscess. J Laryngol Otol. 2004 Dec;118(12):919-26.**[Abstract]**

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